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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/764,908	01/26/2004	Fang Lei	02581- P0553A	3365

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ST. ONGE STEWARD JOHNSTON & REENS, LLC
986 BEDFORD STREET
STAMFORD, CT 06905-5619

EXAMINER	
NGUYEN, THONG Q	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 07/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/764,908	LEI, FANG	
	Examiner	Art Unit	
	Thong Q. Nguyen	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 December 2005 and 15 May 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9 and 11-22* is/are pending in the application.

4a) Of the above claim(s) *2,4,15 and 18-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-9,11-14,16 and 17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The present Office action is made in response to the amendment filed on 12/5/05 and the Appeal Brief filed on 5/15/06.

2. It is noted that in the amendment of 12/5/05, applicant has amended the specification and the drawings. There is not any change to the claims.

The pending claims are claims 1-9 and 11-22 in which claims 2, 4, 15 and 18-22 were withdrawn from further examination as being directed to non-elected species. Claims 1, 3, 5-9, 11-14 and 16-17 are examined in this Office action. Note that claim 10 was canceled by applicant in the amendment of 7/18/05.

3. Applicant's arguments as provided in the Brief filed on 5/15/06 have been fully considered and found persuasive, thus the rejection to claims 1, 8-9, 11-14 and 16 under 35 USC 102(b) over the art of Takahashi et al (U.S. Patent No. 5,743,846) is now withdrawn. It is also noted that the applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

5. The drawings contained six sheets of figures 2-7 filed on 7/18/05, and the drawing contained figure 1 filed on 12/5/05 have been approved by the Examiner.

Specification

6. The lengthy specification which is amended by the amendment of 7/18/05 and 12/5/05 has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 1, 3, 8-9, 11-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (Japanese reference No. 61-20015) in view of Takahashi et al (U.S. Patent No. 5,743,846) (both of record).

Takahashi in his Japanese reference No. 61-20015, hereafter, Takahashi '015, discloses an image transmission system having a plurality of image transmission units. See page 91, columns 1-2 and fig. 1. Each image transmission unit comprises a center rod lens and two outer rod lens elements wherein the center rod lens element is a combination of a center lens elements and two outer lens elements cemented to the center lens elements on the opposite sides of the center lens element. See pages 92-95 and figs. 3-8.

In the embodiment of the image transmission unit as described in page 93, columns 7-8 and shown in figure 4, the image transmission unit comprises a center rod lens element (7) and two outer rod lens elements (5, 6) disposed on opposite sides of the center rod lens element (7) and in a symmetrical manner to one another with

respect to the center lens element. The center rod lens element is a combination of a rod main biconcave lens element and two biconvex lens elements cemented to the main rod biconcave element to form a biconvex center rod lens element, and in combination form a cylinder. It is noted that the center rod biconcave lens element is symmetrical with respect to its center plane perpendicular to the optical axis of the image transmission unit and the lens surfaces of the main rod biconcave lens element and the two cemented biconvex lens elements are also symmetrical with respect to the center plane perpendicular to the optical axis of the image transmission unit and the center rod biconcave lens element. Each of the outer rod lens elements (5,6) is a biconvex rod lens element and is made as one piece. The center biconvex lens element (7) and the two biconvex outer rod lens elements (5, 6) are arranged in a vertex-to-vertex adjacent configuration to one another without any distancing tubes located between the rod lens elements. Regarding to the material of the lens elements, Takahashi '015 discloses that the material of the lens elements is homogenous material.

Regarding to the shape of the lens surfaces of the lens elements, the optical data as provided in columns 7-8 disclose that the shape of each lens surfaces of the lens elements is spherical shape with the following values:

The outer biconvex rod lens element (5) has its entrance lens surface of value 10.578 and its exit lens surface of value 35.259;

The outer biconvex rod lens element (6) has its entrance lens surface of value 35.259 and its exit lens surface of value 10.578; and

The center biconvex rod lens element (7) has three lens elements wherein the first biconvex lens element facing the outer rod lens element (5) has its entrance lens surface of value 9.441 and its exit lens surface of value 4.612; the biconcave element cemented to the exit lens surface of the first biconvex lens element has its entrance lens surface of value 4.612 and its exit lens surface of value 4.612; and the second biconvex lens element cemented to the exit lens surface of the biconcave lens element has its entrance lens surface of value 4.612 and its exit lens surface of value 9.441.

As a result of such a structure, the image transmission unit having two outer rod lens elements (5,6) and a center rod lens element (7) provided by Takahashi '015 meets all of the features recited in the claims 1, 3, 8-9, 11-14, 16 and 17, except that he does not disclose that the length of the center rod lens element is essentially same or longer than the length of each of the outer rod lens elements (5,6) as claimed in present claim 1.

However, the use of an image transmission system having a plurality of image transmission units each comprises a center rod lens and two outer rod lens elements wherein the length of the center rod lens element is essentially same as that of the outer rod lens element is disclosed in the art as can be seen in the endoscope provided by Takahashi et al in their U.S. Patent No. 5,743,846, hereafter, Takahashi et al '846.

In particular, Takahashi et al disclose an endoscope having an image transmission system. The image transmission system comprises a plurality of image transmission units in which each unit comprises a center rod lens element and two outer rod lens elements disposed on the opposite sides of the center rod

lens element and in a symmetrical to one another with respect to the center lens element. Regarding to the dimensions of the rod lens elements, Takahashi et al '846 disclose that the length of the center rod lens element can be shorter than or essentially same as the length of the outer rod lens element.

As shown in each embodiments described in columns 44-48, Tables 1-5, and shown in figures 6, 8, 11, 12, and 13, the length of the center rod lens element is shorter than the length of each of the outer rod lens elements disposed on opposite sides of the center rod lens element. For instance, in Table 1, the length of the center rod lens is about 12.0 while the length of each outer rod lens element is about 45.743. In Table 4, the length of the center rod lens is about 12.0 while the length of each outer rod lens element is about 44.40.

However, the length of the center lens element is essentially the same as the length of the outer rod lens elements is disclosed by Takahashi et al '846 as shown in each embodiments described in columns 48-52, Tables 6-7 and 9, and shown in figures 20-21 and 24. For instance, in Table 6, columns 48-49, the length of the center rod lens is about 29.469 while the length of each outer rod lens element is about 29.648. In Table 7, columns 49-50, the length of the center rod lens is about 31.679 while the length of each outer rod lens element is about 31.497. In Table 9, columns 51-52, the length of the center rod lens is about 29.683 while the length of each outer rod lens element is about 29.166.

As a result of teachings provided by Takahashi et al '846, i.e., the length of the center rod lens element can be shorter than or essentially same as the length of

the outer rod lens element, it would have been obvious to one skilled in the art at the time the invention was made to modify the image transmission unit having a center rod lens element and two outer rod lens elements disposed on opposite sides of the center rod lens element as provided by Takahashi '015 by using a center rod lens element having its length essentially the same as the length of the outer rod lens element as suggested by Takahashi et al '846 for the purpose of enlargement the numerical aperture to allow a greater number of light rays pass through the image transmission unit and thus increase the brightness.

9. Claims 1, 5-9, 11-14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi (Japanese reference No. 61-20015) in view of Takahashi et al (U.S. Patent No. 5,743,846) (both of record).

Takahashi in his Japanese reference No. 61-20015, hereafter, Takahashi '015, discloses an image transmission system having a plurality of image transmission units. See page 91, columns 1-2 and fig. 1. Each image transmission unit comprises a center rod lens and two outer rod lens elements wherein the center rod lens element is a combination of a center lens elements and two outer lens elements cemented to the center lens elements on the opposite sides of the center lens element. See pages 92-95 and figs. 3-8.

In the embodiment of the image transmission unit as described in page 93, column 9 and shown in figure 5, the image transmission unit comprises a center rod lens element (7) and two outer rod lens elements (5, 6) disposed on opposite sides of the center rod lens element (7) and in a symmetrical manner to one another with

respect to the center lens element. The center rod lens element is a combination of a rod main biconvex lens element and two meniscus negative lens elements cemented to the main rod biconcave element to form a biconvex center rod lens element, and in combination form a cylinder. It is noted that the center rod biconvex lens element is symmetrical with respect to its center plane perpendicular to the optical axis of the image transmission unit and the lens surfaces of the main rod biconcave lens element and the two cemented meniscus lens elements are also symmetrical with respect to the center plane perpendicular to the optical axis of the image transmission unit and the center rod biconvex lens element. Each of the outer rod lens elements (5,6) is a biconvex rod lens element and is made as one piece. The center biconvex lens element (7) and the two biconvex outer rod lens elements (5, 6) are arranged in a vertex-to-vertex adjacent configuration to one another without any distancing tubes located between the rod lens elements. Regarding to the material of the lens elements, Takahashi '015 discloses that the material of the lens elements is homogenous material.

Regarding to the shape of the lens surfaces of the lens elements, the optical data as provided in column 9 disclose that the shape of each lens surfaces of the lens elements is spherical shape with the following values:

The outer biconvex rod lens element (5) has its entrance lens surface of value 13.715 and its exit lens surface of value 13.715;

The outer biconvex rod lens element (6) has its entrance lens surface of value 13.715 and its exit lens surface of value 13.715; and

The center biconvex rod lens element (7) has three lens elements wherein the first meniscus negative lens element facing the outer rod lens element (5) has its entrance lens surface of value 12.338 and its exit lens surface of value 7.471; the biconvex element cemented to the exit lens surface of the first meniscus lens element has its entrance lens surface of value 7.471 and its exit lens surface of value 7.471; and the second meniscus negative lens element cemented to the exit lens surface of the biconvex lens element has its entrance lens surface of value 7.471 and its exit lens surface of value 12.338.

As a result of such a structure, the image transmission unit having two outer rod lens elements (5,6) and a center rod lens element (7) provided by Takahashi '015 meets all of the features recited in the claims 1, 5-9, 11-14, 16 and 17, except that he does not disclose that the length of the center rod lens element is essentially same or longer than the length of each of the outer rod lens elements (5,6) as claimed in present claim 1, and the meniscus lens element cemented to the biconvex lens element of the center rod lens has a positive power as claimed in present claim 6.

Regarding to the power of the meniscus lens elements cemented to the biconvex lens element of the center rod lens element as recited in present claim 6, such a feature is not critical to the invention as stated in the specification and in the present claims. The support for this conclusion is found in the specification in which applicant has disclosed that the meniscus lens element has a negative power. It is also noted that the negative power of the meniscus lens is indeed claimed as can be seen in the present claim 7. Thus, absent any showing of criticality, it would have been obvious to one

skilled at the time the invention was made to use any meniscus lens element of negative or positive power with the biconvex lens for the purpose of adjusting the power of the whole lens element.

Regarding to the feature related to the comparison between the lengths of the center rod lens element and the outer rod lens element, it is noted that the use of an image transmission system having a plurality of image transmission units each comprises a center rod lens and two outer rod lens elements wherein the length of the center rod lens element is essentially same as that of the outer rod lens element is disclosed in the art as can be seen in the endoscope provided by Takahashi et al in their U.S. Patent No. 5,743,846, hereafter, Takahashi et al '846.

In particular, Takahashi et al disclose an endoscope having an image transmission system. The image transmission system comprises a plurality of image transmission units in which each unit comprises a center rod lens element and two outer rod lens elements disposed on the opposite sides of the center rod lens element and in a symmetrical to one another with respect to the center lens element. Regarding to the dimensions of the rod lens elements, Takahashi et al '846 disclose that the length of the center rod lens element can be shorter than or essentially same as the length of the outer rod lens element.

As shown in each embodiments described in columns 44-48, Tables 1-5, and shown in figures 6, 8, 11, 12, and 13, the length of the center rod lens element is shorter than the length of each of the outer rod lens elements disposed on opposite sides of the center rod lens element. For instance, in Table 1, the length

of the center rod lens is about 12.0 while the length of each outer rod lens element is about 45.743. In Table 4, the length of the center rod lens is about 12.0 while the length of each outer rod lens element is about 44.40. However, the length of the center lens element is essentially the same as the length of the outer rod lens elements is disclosed by Takahashi et al '846 as shown in each embodiments described in columns 48-52, Tables 6-7 and 9, and shown in figures 20-21 and 24. For instance, in Table 6, columns 48-49, the length of the center rod lens is about 29.469 while the length of each outer rod lens element is about 29.648. In Table 7, columns 49-50, the length of the center rod lens is about 31.679 while the length of each outer rod lens element is about 31.497. In Table 9, columns 51-52, the length of the center rod lens is about 29.683 while the length of each outer rod lens element is about 29.166.

As a result of teachings provided by Takahashi et al '846, i.e., the length of the center rod lens element can be shorter than or essentially same as the length of the outer rod lens element, it would have been obvious to one skilled in the art at the time the invention was made to modify the image transmission unit having a center rod lens element and two outer rod lens elements disposed on opposite sides of the center rod lens element as provided by Takahashi '015 by using a center rod lens element having its length essentially the same as the length of the outer rod lens element as suggested by Takahashi et al '846 for the purpose of enlargement the numerical aperture to allow a greater number of light rays pass through the image transmission unit and thus increase the brightness.

Response to Arguments

10. Applicant's arguments filed on 5/15/06 with respect to claims 1, 3, 5-9 and 11-17 have been considered but are moot in view of the new grounds of rejection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (571) 272-2316. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew A. Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DREW A. DUNN
SUPERVISORY PATENT EXAMINER

Thong Q Nguyen
Primary Examiner
Art Unit 2872

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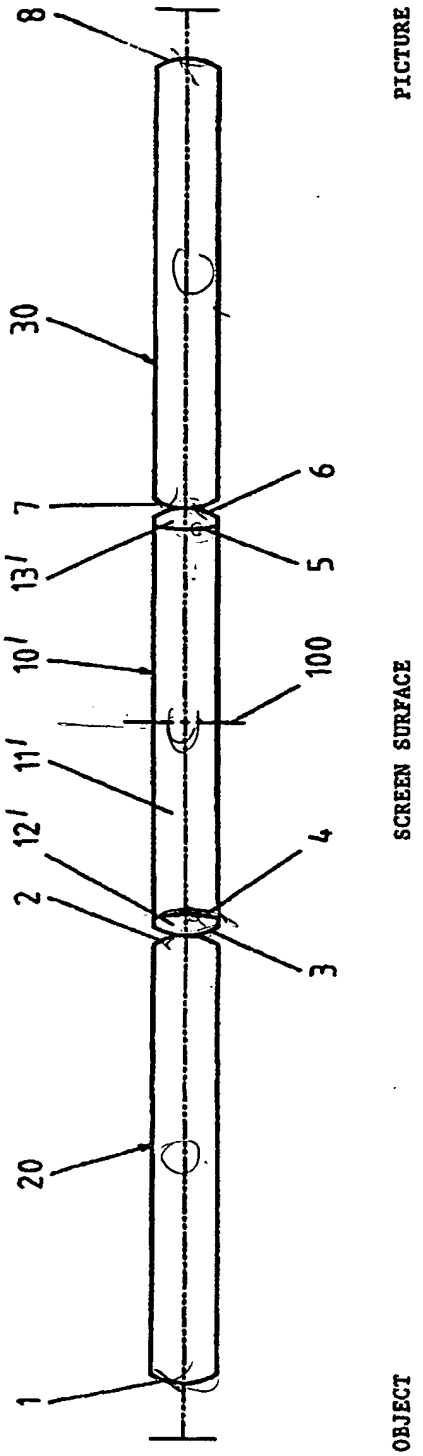

FIG.1